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The Good Health Part of Milk


Dr. David G. Williams

Each month I read and sort through literally hundreds of research papers, articles, newsletters, magazines, new product releases, and personal communications from around the world. On top of all that, I'm constantly keeping in touch with dozens of researchers on their latest developments and discoveries. In some cases, I've written about their findings and just want to keep abreast of anything new. In other cases, I may follow someone's work for a year or longer only to discover that the suspected results never pan out. While all this may sound, and does get, confusing at times, I always keep a couple of things in mind.

First, the ideas and techniques must be uncomplicated, simple enough to use, and effective. They must also be cost-effective. No one subscribes to *Alternatives* to learn brain surgery, and most of us can't afford million-dollar cures. That's why some of the very best "tools" you can use to protect and preserve your health are often the simplest, and kill two (or more) birds with one stone.

One excellent example is the daily consumption of high-quality whey protein powder. It is probably one of the most underutilized tools you can use to improve and protect your health.

Who Moved My Whey?

Whey isn't some glamorous, high-tech product that was just recently discovered. It's the translucent liquid that separates from the curd when milk coagulates during the cheese-making process. Ages ago it was praised as an elixir, but more recently it has generally been discarded as waste. Some of the more savvy farmers knew it would benefit young farm animals and often utilized it in feed.

In the early 1980s, dairy groups began to explore possible uses for whey other than disposing of it. Researchers developed several methods to remove fats, milk salts, and water from whey. During that same period, there were efforts underway to reduce various fats in the diet—which triggered a considerable amount of research on the possible health benefits of consuming whey powder, which is naturally high in protein.

Weightlifters and body-builders discovered that high-protein diets allowed them to achieve their primary objective of increased muscle mass and size. The health community began to notice weightlifters were also able to remain healthier on these diets that were higher in protein and lower in certain fats and simple carbohydrates.

Before whey powder was available, the most popular sources of protein were lean cuts of meat, fish, legumes, oats, and egg whites. Some early "protein powders" used egg whites, but research found whey to be far superior.

Whey powder could be one of the most potent and cost-effective methods of preserving your health, because this so-called "waste product" is proving to be one of the best supplements to help prevent and treat everything from obesity and

In This Issue

You will observe with concern how long a useful truth may be known, and exist, before it is generally received and practiced on.—Benjamin Franklin

Biological Value

■ A measurement of protein quality expressing the efficiency with which protein is used for growth.

Egg is nearly the perfect food, based on the essential amino acids it provides. For a long time, egg protein was the standard by which all other proteins were judged, considered second only to mothers' milk for human nutrition. Based on the latest research, whey appears to be the new standard. On a scale with 100 representing top efficiency, these are the biological values of proteins in several foods.*

Food	Biological Value	Food	Biological Value	Food	Biological Value
Whey	100	Beef	74.3	Wheat, whole	64.0
Whole egg	93.7	Soybeans	72.8	Corn	60.0
Milk	84.5	Rice, polished	64.0	Beans, dry	58.0
Fish	76.0				

* Food and Agriculture Organization of the United Nations. *The Amino Acid Content of Foods and Biological Data on Proteins*. Nutritional Study #24. Rome. 1970. UNIPUB.

diabetes to cancer. If you're still of the mindset that protein powder is only for Arnold Schwarzenegger wannabes, you're missing out on one of the greatest health discoveries of the last century.

Amino Power

The majority of the benefits of whey can be attributed to its dense content of high-quality protein components. In fact, it has been found to be one of the most complete and biologically active forms of protein available.

Whey is called a complete and balanced protein because it contains all the "essential" amino acids (as well as additional amino acids). In comparison, soy protein, which has become so popular recently because of the reported anti-cancer effects of soy's phytochemicals, meets the World Health Authority's minimum protein standards for adults only. But it does not meet the standards for children, so that the necessary amino acids L-methionine and L-taurine must be added to commercial soy products used by children (such as infant formulas).

The quality of various proteins is also based on what is called their biological value (BV), which is determined by how much of that protein is actually absorbed, retained, and utilized by the body. Different BV charts will vary slightly, but whey clearly has a superior BV (see the box above).

As new supporting research becomes available, amino acids are quickly becoming a hot topic in the health field. Most of the isolated amino acids that are now being touted and sold in the health market are naturally contained in whey protein.

What's in Your Whey?

A list of whey's various components looks like the index of a college chemistry textbook. The names look very impressive, so you'll undoubtedly begin to see companies isolate these different components and market them individually. They

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include compounds such as alpha-lactalbumin (or lactalbumin), immunoglobulins, lactoferrin, and glycomacropeptides. Whey also contains other components I've discussed in the past that you may be more familiar with—like sphingomyelin, conjugated linoleic acid (CLA), and calcium. Here are just a few of the more common problems where research has indicated that whey can play an important and pivotal role.

Antimicrobial and Antiviral Activity

Several components of whey—including the immunoglobulins, lactoferrin, lactoferricin, sphingolipids, lactoperoxidase, and glycomacropeptides—can inhibit the growth of a wide range of bacteria, fungi, yeast, and protozoa. In particular, lactoferrin has been shown to stop the growth of two pathogens commonly associated with food poisoning: *E. coli* and *Listeria monocytogenes*. (*Br J Nutr 00;S127*) (*Antimicrob Agents Chemother 01;45(4):1298*) (*Curr Pharmaceut Design 03;9:1257*)

Immune System Enhancement

In past articles, I've discussed the importance of glutathione. The body's level of glutathione is a pretty good indicator of overall health and the ability of your immune system to fight off disease and counter the effects of aging. In one study, researchers were able to accurately predict the survival of AIDS patients based on those patients' glutathione levels. (*Pro Natl Acad Sci 97;94(5):1967–72*)

Whey has a very high content of sulfur-containing amino acids (such as cysteine) that are necessary for the biosynthesis of gluthathione. And studies have shown that you can effectively raise your gluthathione levels through the consumption of whey protein. Other studies among HIV/AIDS patients found that plasma glutathione levels could increase in as little as two weeks after taking whey protein. These patients experienced increased weight gain, better immune system scores, a reduction of gastrointestinal problems, and an improved response to HIV drug therapies. Every HIV/AIDS patient should be taking advantage of the immune-boosting benefits of whey protein powder as an integral part of every treatment program. (*Eur J Nutr 02;41(1):12–8*) (*J Human Virology 02;5:1*) (*Eur J Clin Invest 01;31(2):171–8*)

Research has shown that several components in whey protein work together to improve immunity. A group of blood proteins called immunoglobulins (IgG_1, IgG_2, IgA, and IgM) are incorporated into milk and whey. They help pass on immunity to infants and adults as well. Colostrum, the first milk following birth, contains the greatest concentration of these compounds. And the lactoferrin I mentioned earlier actually stimulates the growth of new immune cells. (*Int Immunopharmacol 02;2(4):475–86*) (*Int Immunopharmacol 05;5(3):591–9*) (*Immunol Lett 03;89:9*)

Also, a recent Polish study showed that giving patients lactoferrin (20 mg a day) prior to surgery was an effective protective measure against post-surgical complications. (*Arch Immunol Ther Exp 01;49(4):325–33*)

Dozens of animal studies have continued to find that concentrates of whey protein improved the body's immune response to all types of pathogens—as well as to surgery and other assaults to the body. Part of this response may be due to the observation that whey protein stimulates the development of the thymus gland. The regular use of whey protein can help keep your body prepared to ward off everything from the flu to cancer.

In another study, researchers found that whey protein exhibited a very specific protective effect on human prostate cells against oxidant-induced cell death. The whey protein significantly increased the concentration of gluthathione, which, in turn, protected the cells of the prostate gland. Oxidative and free-radical damage to the cells can be one of the primary factors leading to cancer of the prostate. (*Toxicol In Vitro 03;17(1):27–33*)

Anti-Cancer Activity

To date, most of the studies on whey protein and cancer have been performed using laboratory animals. These studies have found that a diet supplemented with whey protein provides protection against toxin-induced cancers of the esophagus, lung, bladder, colon, liver, and breast. And it appears that the earlier the whey protein is started, the greater the protective effects might be. (*Cancer Lett 03;198(1):43–51*) (*J Nutr 01;131(12)3281–7*) (*Int J Toxicol 01;20(3):165–74*) (*Cancer Epidemiol Biomarkers Prev 01;10(5):555–8*) (*Asian Pac J Cancer Prev 00;1(4):227–282*)

Moreover, in one human study whey protein was included with other nutritional factors in the treatment program of 20 patients with stage IV (end-stage) cancer (one patient with bladder can-

cer, five with breast, two prostate, two non–small cell lung, three colon, one ovarian, one gastric, one neuroblastoma, one mesothelioma, two lymphoma, and one osteocarcoma). After six months of therapy, 16 of the 20 patients were still alive—a much better result than expected without treatment. The survivors maintained higher glutathione levels than the other four. (*Immunol Invest 02;31(2):137–53*)

Two other components of whey protein also contribute to its anti-cancer activity. Sphingomyelin has been shown to help prevent colon cancer and stop the spread and development of various other forms of cancer. CLA, which I've highly recommended in the past, has been shown to inhibit a number of types of human cancer cell lines and protect against chemically-induced cancers from environmental toxins. (*J Nutr 97;127(6):1055–60*) (*J Dairy Sci 99:82(6):1339–49*)

Cows have the ability to create anticancer compounds from the grasses they feed on and transfer these to their meat and milk. Unfortunately, as more and more of our cattle are being given prepared feeds, levels of these compounds often fall to near zero. The products from grass-fed cattle are rich in these cancer-fighting compounds. Nowadays, we are often forced to supplement our diet with products like CLA and concentrated whey protein powder to achieve the same effects.

Cardiovascular Benefits

When you discuss whey proteins and cardiovascular health, it starts to sound somewhat like the "polypill" (a combination of drugs that was supposed to be good for whatever might be ailing you) the pharmaceutical companies were trying to promote recently. The difference is that whey protein really does address many of the problems associated with cardiovascular disease—and it isn't associated with any side effects common to heart medications.

Whey proteins inhibit the angiotensin converting enzyme (ACE). I'm sure you've heard of the class of blood pressure–lowering drugs called ACE inhibitors that do the same thing. Again, a combination of components in whey powder provides this blood pressure–lowering benefit and vascular relaxation without the side effects of drugs. (*J Dairy Sci 04;87(7):1967–74*) (*Br J Nutr 00;84 Suppl 1: S33–7*)

One company, Davisco Foods International, has developed a natural blood pressure–lowering product from whey protein and has started testing it in humans. The product, called Biozate, was shown to reduce blood pressure significantly in just seven days without the side effects of drugs. Additional benefits were a reduction in harmful forms of cholesterol and C-reactive protein levels. Further testing is underway. (*Cardiovasc Drugs Ther 02;16 Suppl 1:68*)

Other proteins in whey reduce the stickiness of blood platelets and the risk of thrombosis, which can trigger both heart attack and stroke. The consumption of whey protein also helps reduce high levels of LDL cholesterol, increase the beneficial HDL form, and reduce triglycerides. Whey protein may not be the "polypill" the pharmaceutical companies were wanting, but it certainly might turn out to be the "polydrink" of the masses.

Stress Reduction

In a study performed in the Netherlands, researchers gave 29 "stress-vulnerable" subjects the whey protein alpha-lactalbumin. The result was a reduction of cortisol, a hormone commonly associated with unresolved stress. Participants also experienced less depression and an improved ability to cope with their environment. The researchers reported that whey protein increased the availability of tryptophan in the brain, which, in turn, increases the brain's synthesis of serotonin. The added serotonin promotes a calmer mood and an ability to handle stress. (*Am J Clin Nutr 00;71(6):1536–44*) (*Am J Clin Nutr 02;75(6):1051–6*)

A Japanese company, Ajinomoto, recently announced that they would be marketing a sleeping aid that utilizes the non-essential amino acid glycine (3 grams within an hour before bedtime). Glycine is the most common of all amino acids and has the simplest structure. It also just happens to be one of the compounds found in whey protein. I wouldn't be surprised if glycine is partially responsible for the anti-stress effects also associated with whey protein.

In the past, glycine has been shown to calm the central nervous system and has been used to help control epilepsy and decrease the symptoms of schizophrenia. Most doctors still aren't aware that glycine can be very useful in helping to control what are referred to as "acute panic attacks." I'm not referring to the everyday anxiety/depression

experienced by many, but rather the attacks that come on quickly—generally without notice.

Glycine works by interfering with the release of the neurotransmitter norepinephrine. At the first sign of a panic attack, place two grams of glycine powder under the tongue and let it slowly dissolve. This process can be repeated every few minutes if necessary and, in most cases, the problem will resolve within 10 to 15 minutes. Glycine has a slightly sweet taste and is non-toxic. However, I would suggest limiting the doses during one of the episodes to about 20 grams. Some have experienced nausea and stomach ache with higher doses.

The glycine content of whey protein also undoubtedly contributes to its ability to help repair tissue and heal wounds. With whey, you also get the added growth factors (IGF-1 and 2)—both of which have been shown to accelerate wound healing in the gut. Finally, glycine is also important in both memory and cognitive functions.

Although you wouldn't get the high levels of glycine used for panic therapy from a typical whey protein drink, smaller regular doses with the many other components, such as from a daily whey drink, could help you deal with stress and improve sleep. For dosages as high as 3 grams, you would need to purchase a separate supplement. One of the best sources for amino acids of all types is Jo-Mar Laboratories, *www.jomarlabs.com* or 800-538-4545.

Whey proteins have also been shown to protect the stomach and intestinal tract from stress-induced ulcers. This simple way to help prevent ulcers could be worth its weight in gold to thousands of ulcer patients. (*Biosci Biotechnol Biochem 01;65(5):1104–11*)

The above research helps explain the recent reports from Japan where glycine is being used as an anti-bacterial agent in the treatment of antibiotic-resistant *H. pylori* infections that result in gastric ulcers. Glycine was able to eradicate the *H. pylori* infections on its own, but the researchers also discovered that when it was used along with the antibiotic amoxicillin, the amount of the drug needed to kill the bacteria was reduced by 90 percent. It would be interesting to see additional research into whether glycine alone (or with other components in whey powder) could reduce the need for other types of antibiotics in other infections as well. (*Antimicrob Agents Chemother 04;48(10):3782–8*)

Osteoporosis and Bone Cell Growth

In addition to minerals necessary for bone growth, whey contains a protein called lactoferrin—which as you've just read is associated with a wide range of benefits including immune support, anti-inflammatory action, cancer prevention, infection fighting, and wound healing. Research from New Zealand has now determined that lactoferrin is able to increase the production of new bone, which could have enormous impact on the treatment of osteoporosis and non-healing bone fractures. Additional animal research with rabbits found that lactoferrin also protects against bone breakdown. (*Endocrinology 04;145(9):4366–74*) (*Biometals 04;17(3):331–5*) (*Biochem Biophys Res Commun 02;296(2):261–6*)

Obviously, lactoferrin consumption through whey protein products is only one facet of treating osteoporosis. I've covered these other areas in the past: weight-bearing exercise, adequate intake of vitamin D, and several other vitamins and minerals are all essential for proper bone growth and repair.

Prebiotic Activity

If you've been a subscriber of *Alternatives* for any length of time, you probably know my fondness for fermented foods and probiotics—items that improve the balance of bacterial flora in the intestinal tract. I think they are some of the most potent natural medicines we have available. However, I haven't spent much time discussing *pre*biotics.

In a nutshell, prebiotics are foods or compounds that are fermented by bacteria in the colon after they've entered the system. You can either supply your colon with additional beneficial bacteria through the use of probiotics, or you can feed the beneficial bacteria already present with specific compounds to help them multiply in number and become more dominant.

When used in combination with a good probiotic, whey proteins and its other components act as a prebiotic to provide added assurance that your "second immune system" (your gut) is getting the help it needs. One of the benefits of adding whey to the diet is often the normalization and consistency of bowel movements, particularly in the elderly.

Antioxidant Activity

The lactoferrin fraction of whey protein binds with iron. The combination provides a stable method of iron transport, and lessens the amount of free iron in the system that can trigger oxidative reactions. (Excess free iron has been a concern in the acceleration of heart disease and other problems.)

In an indirect way, whey protein helps reduce the overall need for antioxidants in your body. Various enzymes, immunoglobulins, and other factors reduce the oxidative burden by reducing inflammation and destroying pathogens (among other activities). In effect, the added protection provided by whey helps your immune system maintain higher "reserves" that can be called upon when necessary. New research has revealed that lowering the oxidative burden in your body may be one of the primary keys to remaining healthy and slowing the aging process.

Obesity, Appetite Suppression, and Weight Control

Whey protein is unique in that it can help the overweight lose excess fat and help the underweight gain pounds in the form of lean muscle.

When you drink a whey protein shake in the morning, it's more than just the initial feeling of fullness that suppresses the urge to eat. Whey protein contains unique chains of 64 amino acids called glycomacropeptides that perform a wide variety of functions—just one of which is to help regulate appetite. Where they really seem to shine, however, is in the gastrointestinal tract.

Glycomacropeptides start their effects at an early age by reducing inflammation in the newborn's stomach, and they continue to do so as we get older. Ingesting these peptides can help reduce the secretion of acid by over 50 percent during periods of stomach inflammation. In fact, individuals with acid reflux disease have often found blessed relief with whey protein powders.

Glycomacropeptides are a very potent stimulator of the release of the hormone cholecystokinin (CCK), which has many functions. First, it stimulates both the pancreas and the gallbladder to improve digestion. Additionally, it regulates emptying of the stomach and movement of your bowels. However, the function of CCK that most research seems to focus on is appetite suppression.

Essentially, glycomacropeptides do naturally what every drug manufacturer in the world is trying to duplicate artificially: increase the release of CCK. The protein signals the brain that the body is full, which suppresses the appetite and results in a large reduction of food intake. It is generally agreed that protein is the most satisfying and quenching macronutrient, but research has shown that not all proteins are alike in this ability. Whey provides a very strong satiety response. One study reported that glycomacropeptides from whey increased the release of CCK by over 400 percent. To find a drug that would safely do the same without side effects would be a pharmaceutical company's dream.

(You might want to keep in mind another interesting tidbit here. While whey proteins appear to be an excellent way to help curb your appetite and regulate your food intake, some researchers feel that the artificial sweetener sodium saccharin might actually interfere with the release of CCK—which would disrupt the triggering mechanism that is supposed to naturally signal your brain when you're full.) (*J Nutr Sci Vitaminol 84;30(6):569–76*) (*Br J Nutr 03;89(2):239–48*)

Whey fits the bill as an excellent low-fat, low-carb source of nutritional protein. As a protein powder, it can be included in a filling, satisfying meal replacement drink that is ideal for weight-loss and muscle enhancing programs. One of the best things about a daily whey powder shake is that you can make it an integral part of your daily regimen instead of trying some bizarre fad diet that is either unhealthy or impossible to stay on long-term.

Making the Choice

I realize that not everyone will add whey protein to his or her diet. If you decide not to do so, at least keep it in the back of your mind. If you *do* make the decision to start taking whey protein powder, choosing the right one can be a daunting task, to say the least. While I'm sure there are many good ones on the market, it's hard to sort through all the hype and propaganda. I've tried dozens over the years, and I can tell you they're not all the same. It's definitely one area where you have to pay a little more to get the ones that maintain their activity, mix easily with liquids, and have a taste and texture you can stomach.

I routinely use and recommend a product called Designer Whey Protein. It's a quality product

that can be found in most health food stores and mail-order suppliers, including Nutrition Express, 800-338-7979 or *www.nutritionexpress.com*.

Obviously, the recommended amount of protein per day varies from individual to individual depending on the other protein in the diet, the degree of physical activity, and what one is trying to accomplish.

As a general daily dose, I recommend that most people take about 18 grams of high quality whey protein a day. The easiest method I've found is to mix the powder with either skim milk (my favorite), water, juice, or other liquid, plus a little ice (if desired) in a blender and make a small health shake first thing in the morning. You can also experiment by adding various fresh or frozen fruits, fruit powders (et cetera) to the mix. It's simple, painless, and a great way to start your morning.

The Whey to Be More Lactose-Tolerant

After reading the previous article, some of you may wonder whether you should dismiss the idea of using whey because you suffer from lactose intolerance. This condition prevents many people from consuming dairy products, and whey seems to be particularly difficult for some people to digest. Of course, one of the primary culprits in standard whey is the milk sugar, lactose. In fact, the lactose in standard whey powder comprises more than 70 percent of its total solids.

In order to digest lactose, you must produce the enzyme lactase—which is deficient in many individuals. Undigested lactose can result in indigestion, gas formation, diarrhea, and abdominal pain and distension. If you've tried fresh whey and experienced problems such as these, you're more than likely lacking in lactase. In other words, "lactose intolerance" could just as easily be named "lactase deficiency."

It is estimated that about 75 percent of adults worldwide have the problem to some degree. Humans and other mammals need lactase to help digest mother's milk, so it's normally produced in large amounts following birth. Production gradually begins to decline during years 2 to 6 in humans, but in some individuals production may continue throughout life. A prime determinant is your genetic background.

The Geography of Genetics

Of course, not everyone suffers from lactose intolerance. Some people continue to produce adequate amounts of lactase as they get older. The descendents of Northeastern Europeans and certain African populations generally don't have problems because their ancestors consumed more milk, and their ability to produce lactase was maintained and passed down through their genes. However, those people with ancestors from the following areas or races are generally more lactose-intolerant and have difficulty consuming milk products:

- East and South Asia
- Most of Africa
- Pacific and Mediterranean Countries
- Native Americans
- Jews
- Eskimos

For the record, there are circumstances other than a shortage of lactose that might result in your sudden inability to handle milk products: an episode of acute, infectious diarrhea; alcohol use/abuse; use of various antibiotics or other drugs (tetracycline, neomycin, kanamycin, methotrexate); or viral infections such as HIV.

A Way to Get Your Whey

When you are lactose-intolerant, consuming dairy not causes digestive problems, it can also elevate your triglyceride levels. The result is an increased risk of heart disease.

Most people produce some amount of lactase, so the disorder is not always evident and is "dose-dependent." In other words, many people may be able to consume small amounts of milk products containing lactose, but larger amounts could cause problems. Also, the fat content of the product makes a difference. Skim or fat-free milk will generally cause more symptoms. However, products with high fat content (like whole milk or ice cream) delay digestion in the stomach and cause less problems—and mixing the milk with something like breakfast cereals may totally prevent any symptoms. Additionally, fermented milk products with live cultures (like yogurt) don't pose a problem because they inherently contain lactase activity.

To get the benefits of whey without lactose problems, you can add a few drops of lactase enzymes (Lactaid) to your whey protein drink or any of your dairy foods. Finally, you can also try one of the lactose-free whey protein products on the market, from Healthier Harvest at *www.healthier-harvest.com/whey.htm*. An added benefit of the Designer Whey I recommended in the previous article is that it is lower in lactose than most brands, at only 3 percent.

Starving in the Land of Plenty

Hospitals have a well-earned reputation for unappealing food. Now it turns out that what they provide can actually damage your health.

Protein calorie malnutrition (PCM) can be a matter of life and death in the elderly, particularly those who become hospitalized. As far back as 1976, one study utilizing various criteria for measuring PCM found that between 44 and 76 percent of general medical patients being admitted to the hospital were protein-deficient. Another study in 2004 found that 58 percent of 105 patients were protein-malnourished. Other studies have confirmed that not only are many patients protein-deficient when they enter the hospital, but their condition becomes worse after admission. One problem is that many patients are instructed not to eat prior to certain tests. Then, when they do eat what the hospital offers, the food is insufficient to meet their energy and nutrient requirements.

Not only does protein malnutrition contribute to poor health in the first place, it can also reduce the chances of recovery, increase complications by up to 20 fold in conditions such as pneumonia or infection, and contribute to an increased risk of mortality. (*JAMA 76;235(15):1567–70*) (*Ann Med Intern 04;21(6):263–8*) (*JAMA 80;243(17):1720–2*) (*JAMA 99;281(21):2013–9*)

Inadequate protein in the diet weakens the intestinal wall and allows foreign substances (such as bacteria and other pathogens) to enter the bloodstream. This invasion can rapidly escalate into localized infection and sepsis—a life-threatening illness caused by an overwhelming infection of the bloodstream brought on by toxin-producing bacteria, and which is difficult and often impossible to treat. (*J Med Soc N J 81;78(4):291–5*) (*Br J Surg 96;83(9):1288–91*)

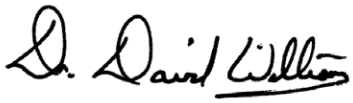
Patients with PCM that are being treated for severe trauma, burns, or cardiac failure may be at an even greater risk than most patients. Under these circumstances the body has an immediate, crucial need to stop the wasting and destruction of protein-rich muscle and switch the body into an anabolic state of new muscle formation and repair. Without adequate protein, it can be difficult, and sometimes impossible, to reverse the situation.

As an example, coronary ICU patients with PCM had over a four times higher risk of dying than those properly nourished. When you consider that heart disease is one of the primary reasons for hospitalization of the elderly, it's understandable how proper protein nourishment could have profound effects in the field of coronary care.

Overall, when patients' diets are supplemented with protein, they lose less weight during their hospital stay and experience fewer complications, and their mortality risk is significantly reduced. (*JPEN 01;25(6):323–9*)

Obviously, the ideal situation is not to get yourself into a malnourished, protein-deficient state in the first place. Whey provides you with the high-quality protein that you need to maintain your health and ward off potential problems.

Take Care,



If you have questions or comments for Dr. Williams, please send them to the mail or e-mail addresses listed to the right. Of course, practical and ethical constraints prevent him from answering personal medical questions by mail or e-mail, but he'll answer as many as he can in the Mailbox section of *Alternatives*. For our part, we'll do our best to direct you to his issues, reports, and products related to the subject of your interest.

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- To order nutritional supplements from Mountain Home Nutritionals (MHN), call 800-888-1415 or visit **drdavidwilliams.com**.
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